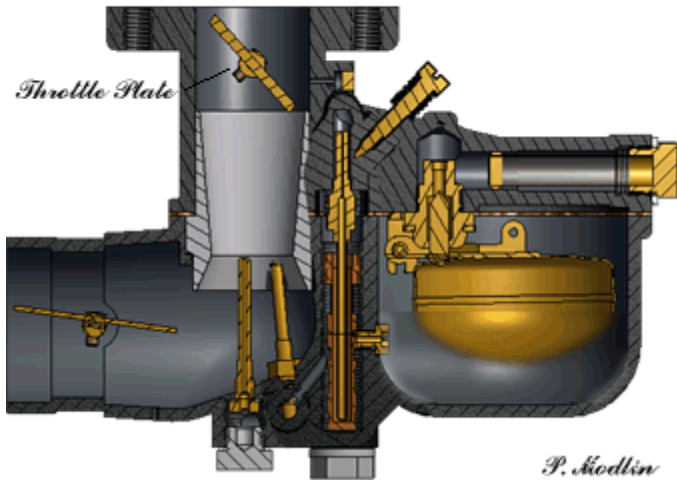


ZENITH Carburetor Basics

The main function of the carburetor is to atomize the liquid fuel into a gas for combustion creating the power stroke of the engine. On an alternate downward stroke of the piston, air is drawn through the venturi increasing its velocity, in turn creating a vacuum that draws fuel from a jet. The air and fuel are atomized in the venturi and delivered to the combustion chamber for the compression stroke and ignition.

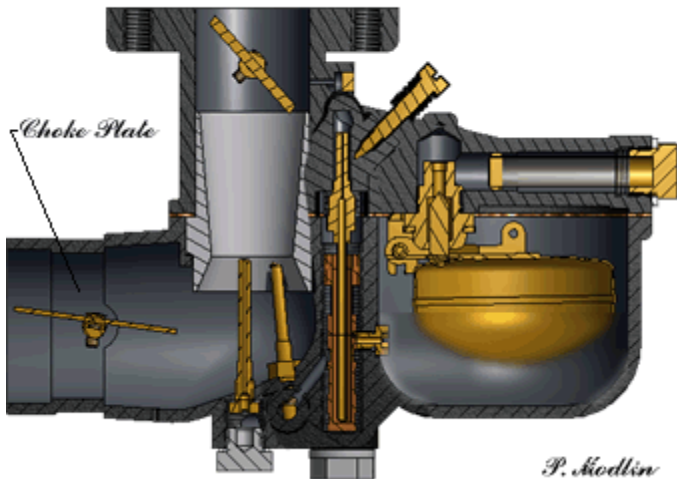
Throttle Plate



P. Modlin **Throttle Plate**

The throttle plate manages the amount of air flow that is delivered to the engine and is controlled by the "Throttle Lever" and "Accelerator" inside the cab.

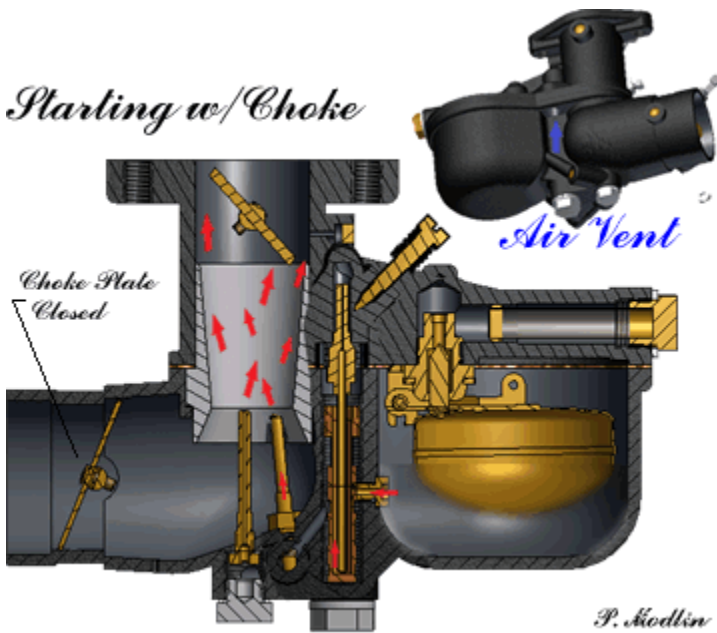
Choke Plate



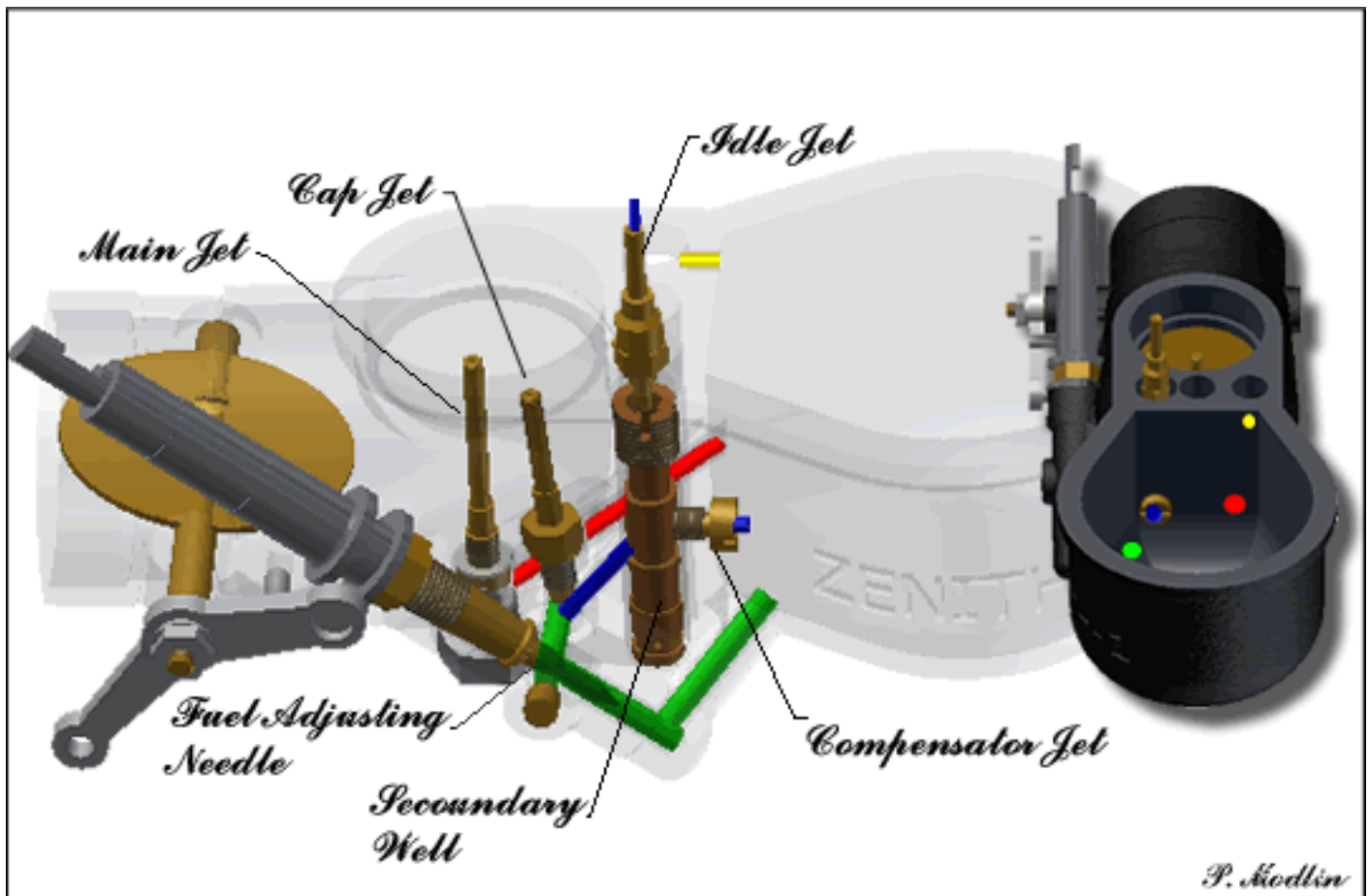
P. Modlin **Choke**

Pulling on the Carburetor Adjustment Knob, often called the GAV (Gas Air Valve) inside the cab opens and closes the Choke Plate. Turning the GAV enriches or leans the fuel mixture flowing through the "Cap Jet".

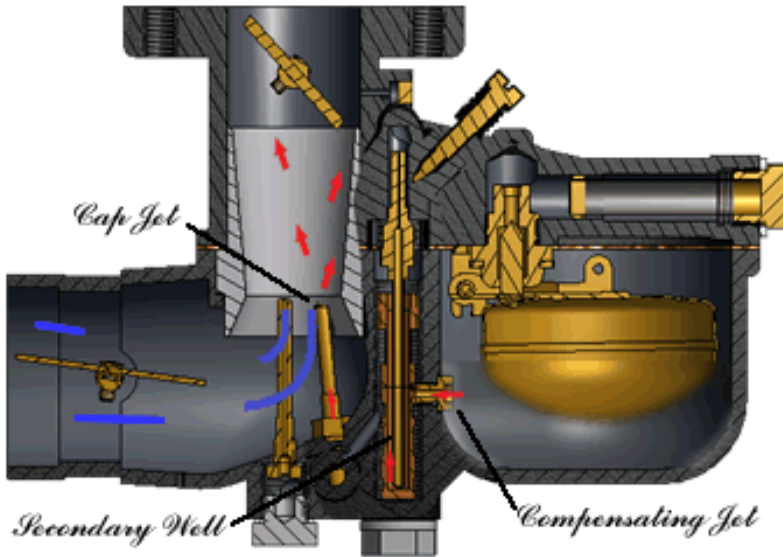
Starting w/Choke



When the engine is started with the choke closed a greater vacuum is formed, pulling in a larger amount of fuel.



- **GREEN:** Adjustable fuel supply for Cap Jet
- **BLUE:** Predetermined fuel supply by Compensator Jet for Cap Jet and Idle Jet
- **RED:** Direct fuel supply for Main Jet (Used for High Speeds)
- **YELLOW:** Ambient air to fuel bowl



Compensating Jet

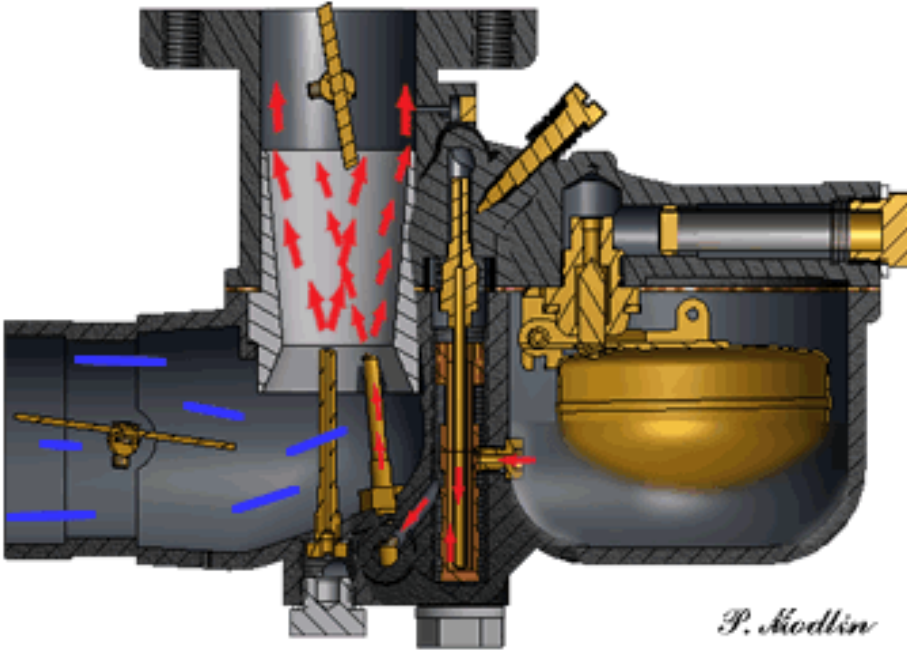
The "Compensating Jet" is inside the fuel bowl and empties into the "Secondary Well" which is open to the air. The "Cap Jet" connects with the "Secondary Well". The "Cap Jet" can only draw as much fuel as the "Compensating Jet" will allow, regardless of the amount of suction.



Cap Jet

The "Cap Jet" has an additional fuel supply from the "Fuel Bowl". The flow rate of the fuel to the "Cap Jet" is controlled inside the cab with the "GAV" adjustment knob. Turning it left (towards the driver) enriches the fuel mixture for the "Cap Jet". The "Cap Jet" is used at low speeds.

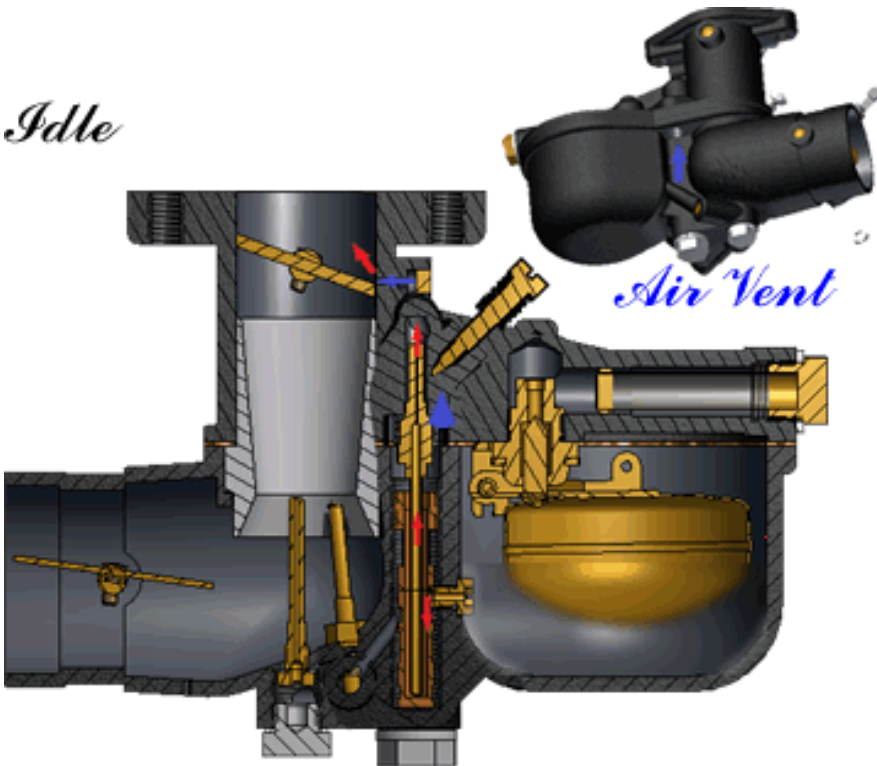
High Speed



P. Kodlin **Main Jet**

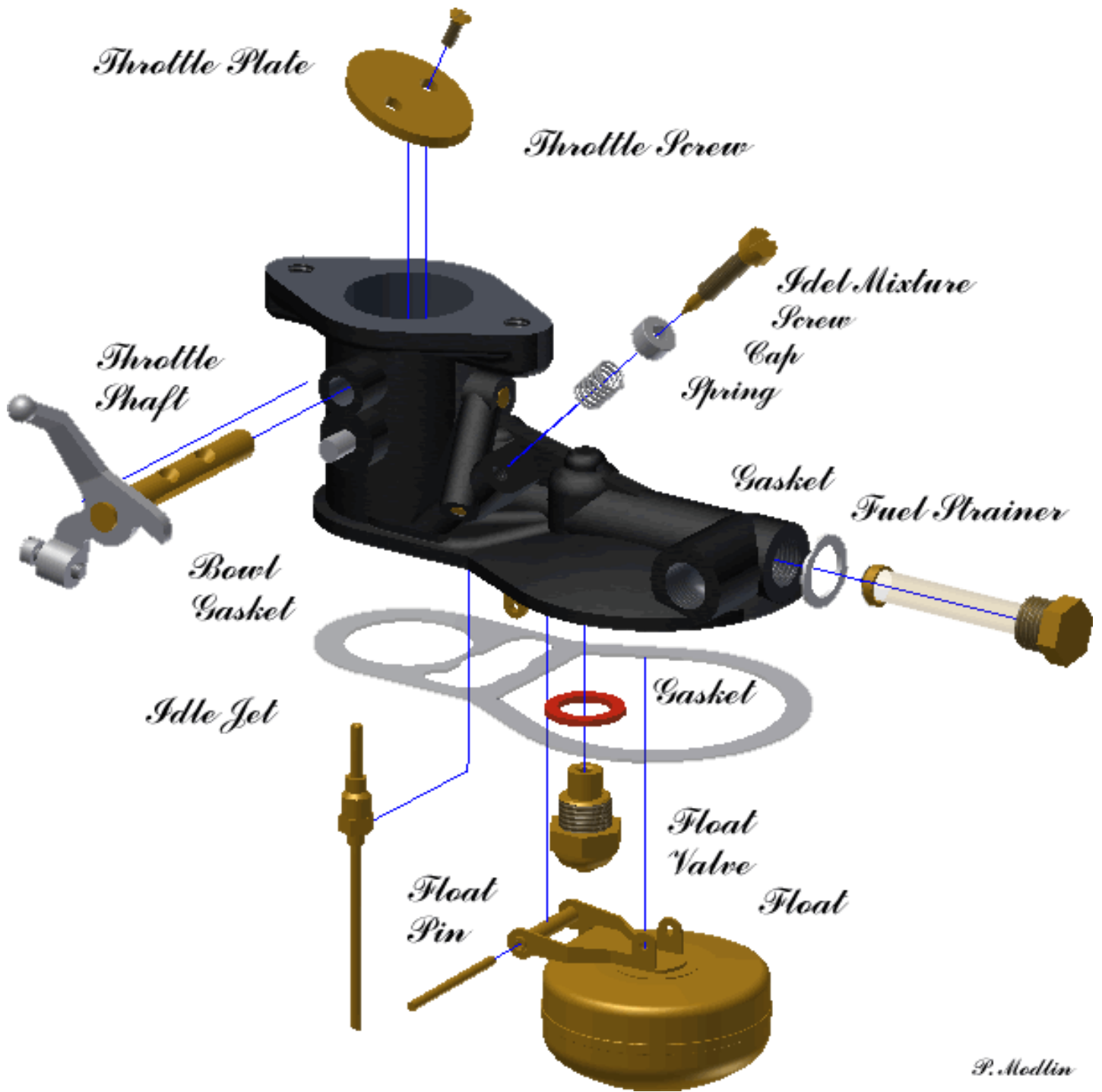
The "Main Jet" is connected directly to the "Fuel Bowl". It acts like a straw; the stronger the suction the greater amount of fuel will be supplied. The "Main Jet" kicks in and helps out the "Cap Jet" at higher speeds. When cruising, the "Cap Jet" can be leaned out (turn right) to conserve on fuel.

Idle



Idle Jet

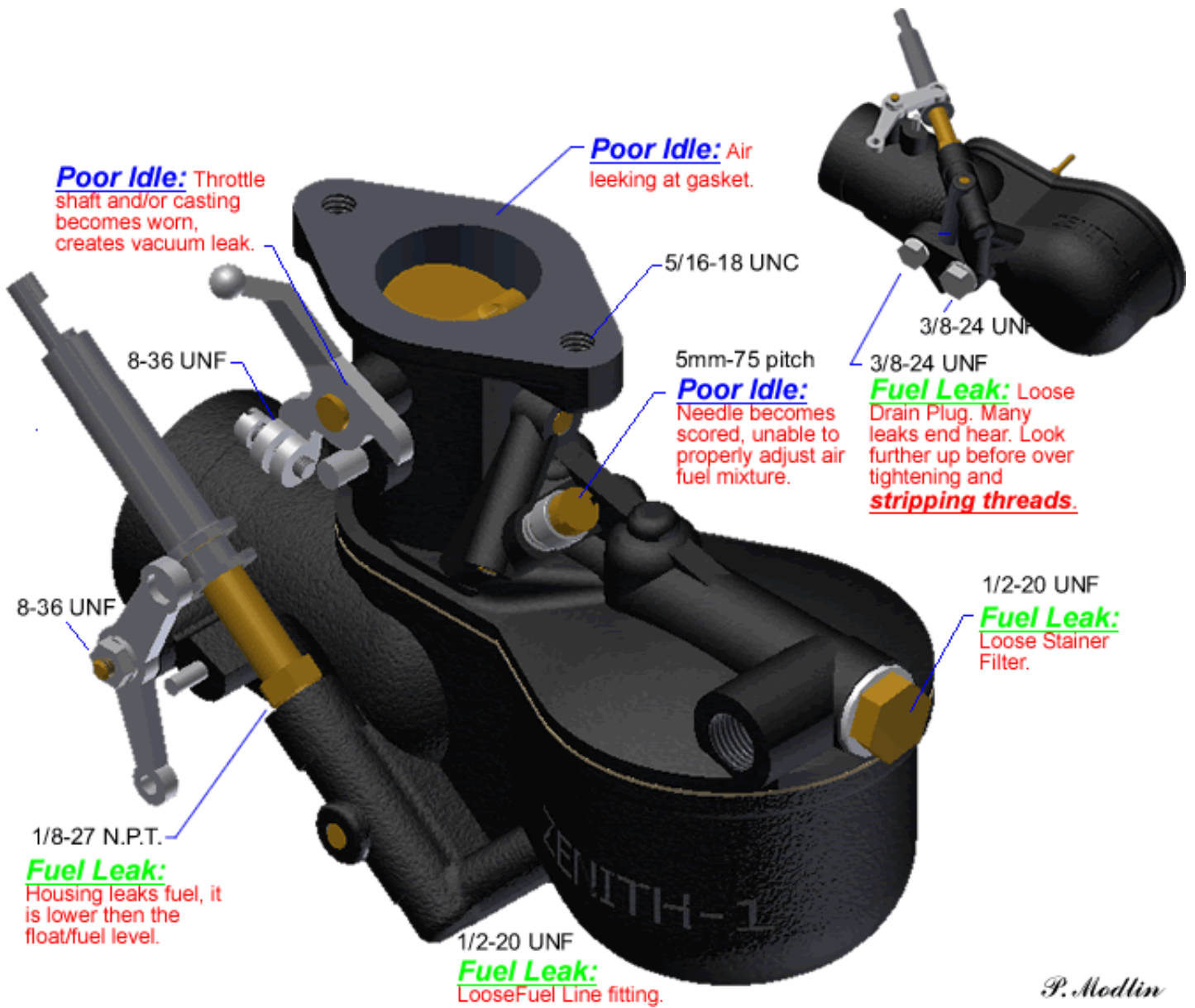
Idling occurs when the "Throttle Plate" is partially open. A vacuum above the plate is created, drawing air through a small hole, which pulls the gas from the secondary well through the "Idle Jet".



P. Modlin

Before blaming the carburetor check the following:

- Check the plugs they should be clean and the gap should be set at
- Check the breaker points look for pitting the gap should be set at
- Check for air leaks where the carburetor meets the manifold and the manifold meets the block (while running squirt oil around the gaskets and if the engine increases in speed there is an air leak)
- Check the engine compressions. All cylinders should be within 10% of each other. (poor compression indicates possible problems with valves, rings or head gasket)



Poor Idle: Throttle shaft and/or casting becomes worn, creates vacuum leak.

Poor Idle: Air leaking at gasket.

5/16-18 UNC

8-36 UNF

5mm-75 pitch
Poor Idle: Needle becomes scored, unable to properly adjust air fuel mixture.

3/8-24 UNF

3/8-24 UNF
Fuel Leak: Loose Drain Plug. Many leaks end hear. Look further up before over tightening and **stripping threads.**

8-36 UNF

1/2-20 UNF

Fuel Leak: Loose Stainer Filter.

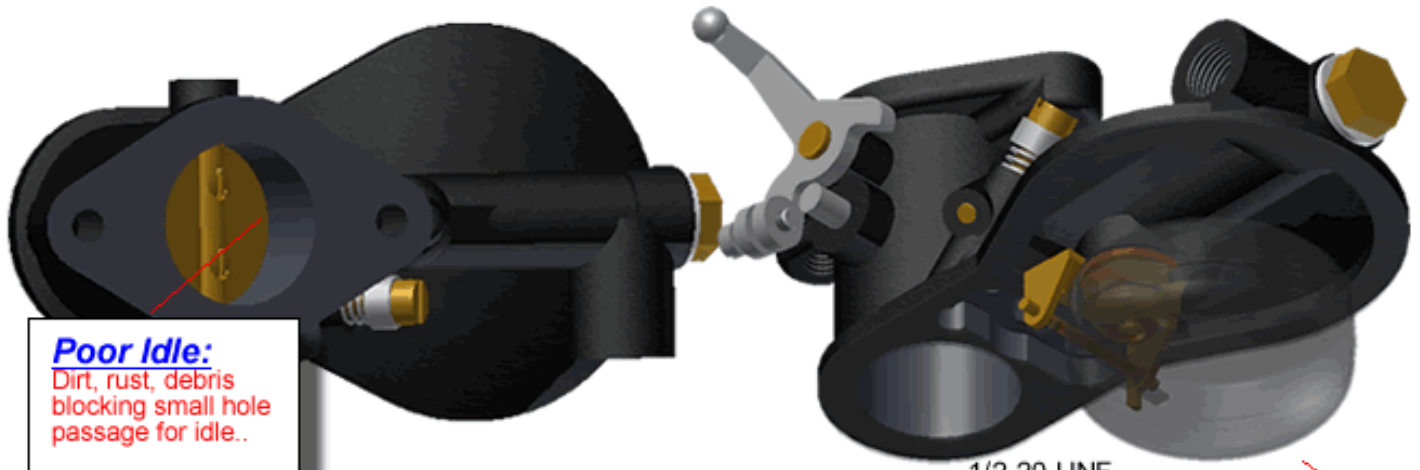
1/8-27 N.P.T.

Fuel Leak: Housing leaks fuel, it is lower then the float/fuel level.

1/2-20 UNF

Fuel Leak: Loose Fuel Line fitting.

P. Modlin



Poor Idle:
Dirt, rust, debris blocking small hole passage for idle..

1/2-20 UNF
Fuel Leak:
Gasket not seated and/or valve does not seat due to dirt, rust or failure..

Fuel Leak:
Float set to high. Spilling fuel out of jets.

Cap Jet Orifice #62 or #63 Drill
5mm-75 pitch
Fuel Leak:
Gasket not seated Jet tip is not dished
Poor Mileage:
Gasket not seated. Jet Orifice is the wrong size.

Idle Jet Orifice #75 Drill
Poor Idle:
Dirt, rust, debris blocking passage. Jet Orifice is the wrong size.

Fuel Leak:
Gasket not seated Jet tip is not dished
Main Jet Orifice #63 or 64 Drill

Comp. Orifice #65 Drill
Poor Idle:
Gasket not seated and/or dirt, rust blocking passage. Jet Orifice is the wrong size.
Poor Mileage:
Gasket not seated. Jet Orifice is the wrong size.

Note: All jet threads or 5mm-75 pitch

Secondary Well 3/8-24 UNF
Poor Idle:
dirt, rust, and/or debris blocking bottom holes.

